2.0 DESCRIPTION OF ALTERNATIVES

2.1 Introduction

2.2 Criteria for Evaluating Alternatives

This EA evaluates the proposed action and the Project alternatives that were developed to meet the identified purpose and need of the Project. When developing alternatives, the following criteria were considered:

- Traffic impacts during construction;
- Required utility relocations;
- Access to businesses during construction;
- ROW impacts;
- Impacts to railroad operations; and
- Project costs.

Several build alternatives were considered, but only one build alternative was recognized as feasible, Alternative 2: Offset Overpass with Connector Road. The Build Alternative was identified as a suitable alternative using the criteria above. Therefore, the alternatives considered for the Project are the Alternative 1 (No Build Alternative) and one Build Alternative (Alternative 2). Resource areas evaluated for each alternative include land use, community impacts, utilities/emergency services, traffic and transportation/pedestrian and bicycle facilities, visual/aesthetics, cultural resources, water quality and storm water runoff, hazardous waste/materials, air quality, and noise. In addition, the potential cumulative impact of past, present, and reasonably foreseeable future projects in the project region are evaluated with respect to these resources.

2.3 Evaluated Alternatives

2.3.1 Alternative 1: No Build Alternative

Under Alternative 1 (No Build Alternative), the current configuration of the Rosecrans/Marquardt Avenue and BNSF railroad tracks intersection would be maintained, and the at-grade railroad crossing would remain. This alternative would not improve safety because each user (trains, vehicles, and pedestrians) would continue sharing the Rosecrans/Marquardt intersection crossing, which would not address the risk of collision. Additionally, the segment of BNSF corridor in the project area has been planned for a third set of BNSF tracks, which would require changes in roadway geometry in the project area. Existing conditions are not conducive to accommodate future HSR infrastructure. Under the No Build Alternative, construction activities would not be completed. However, this alternative would not help to achieve the desired safety or circulation improvements, and would therefore not meet the Project purpose and need.

2.3.2 Alternative 2: Offset Overpass with Connector Road (Build Alternative)

Under Alternative 2 (Build Alternative), Rosecrans Avenue would be realigned to the south, and an overpass would be constructed to raise Rosecrans Avenue over Marquardt Avenue, the BNSF ROW, and Stage Road (see **Figure 2-1.** Alternative 2 – Plan View**)**. The southern leg of Marquardt Avenue would be extended under the overpass and connected to Rosecrans Avenue. The northern leg of Marquardt Avenue would be connected to Stage Road. A frontage road would also be constructed to connect Anson Avenue to the northern leg of Marquardt Avenue and Stage Road.

Traffic signals would be installed along Rosecrans Avenue: one at the intersection with Marquardt Avenue to the west, and one to the east of the overpass at the intersection with Iseli Road. Other improvements include sidewalk construction, street lighting installation, landscape installation/replacement, parking lot reconfiguration, and utility relocations. Alternative 2 would require full acquisition of eight properties, including six industrial properties and two commercial properties (Sierra Plaza and Animal Hospital), and various partial and temporary easements, including seven roadway easements, one footing easement, one utility easement, and 15 temporary construction easements (TCEs) (see **Figure 2-2.** Right of Way Exhibit). Construction would be completed over an approximately 24-month period.

Improvements considered under Alternative 2 would meet the purpose and need of the Project. Connectivity between Rosecrans Avenue, Marquardt Avenue, Stage Road, and Anson Avenue would be maintained through the use of signalized intersections. Utilities in the existing roadway would remain in their existing alignment, minimizing the duration of construction. Proposed transportation structures would be located outside of the BNSF ROW, so that a third set of BNSF tracks and future HSR tracks would be accommodated. The majority of construction activities under this alternative would be completed outside of the existing Rosecrans Avenue footprint in order to meet the purpose and need element, “maintain access to the railroad for emergency responders”, which includes access during Project construction. Access disruptions to residents, businesses, and the community during construction would be minimized to the maximum extent feasible. Operation of Alternative 2 would enhance mobility and quality of life for the community. Therefore, the Project would help achieve the desired safety and circulation improvements, and would meet the Project purpose and need.

2.4 Alternatives Dismissed

The following alternatives were considered, but dismissed in January of 2016 after completion of the Alternatives Analysis Report that was prepared for the Project (Biggs Cardosa Associates, Inc., 2016).

2.4.1 Offset Overpass with One-Way Frontage Roads

Under the Offset Overpass with One-Way Frontage Roads Alternative, Rosecrans Avenue would be realigned to the south of the existing roadway footprint with a grade-separated overpass. Marquardt Avenue, south of Rosecrans Avenue, would maintain partial connectivity to Rosecrans Avenue with the use of frontage roads. Marquardt Avenue (south) would continue under the realigned Rosecrans Avenue and would connect to an on-ramp and off-ramp to Rosecrans Avenue on either side of the underpass. Due

to the loss of northbound right turn and westbound left turn movements, Marquardt Avenue (south) would only be accessible to Rosecrans Avenue in the eastbound travel direction, west of the railroad corridor.

This alternative would affect 23 properties through ROW acquisition including full acquisition of eight properties, including six industrial properties and two commercial properties (Sierra Plaza and Animal Hospital), and various partial and temporary easements, including seven roadway easements, one footing easement, one utility easement, and 15 TCEs (see **Figure 2-2.** Right of Way Exhibit). The ROW costs associated with this alternative would be substantial. Under this alternative, the Project purpose and need would be met; however, Alternative 2 would accomplish the same improvements with minimized ROW impacts. Therefore, the alternative was dismissed from consideration.

2.4.2 Offset Underpass with Frontage Roads

The Offset Underpass with Frontage Roads Alternative would depress Rosecrans Avenue underneath the BNSF tracks and adjacent roadways. For this alternative, the proposed horizontal realignment of Rosecrans Avenue would be the same as described in the Offset Overpass with One-Way Frontage Roads alternative (Section 2.4.1). Marquardt Avenue (south) would continue over the realigned Rosecrans Avenue and would connect to an on-ramp and off-ramp to Rosecrans Avenue on either side of the overpass. Marquardt Avenue (north) would be connected to the extension of Stage Road in this alternative, and would stay at-grade on its own roadway bridge across the lowered portion of Rosecrans Avenue. The connection to Rosecrans Avenue would be maintained through the extension of Anson Avenue to Stage Road.

Shoofly tracks would be required to maintain railroad operations during construction, increasing cost and lengthening the duration of construction (36 to 40 months). Depressing the roadway would require significant utility relocations, which are especially challenging for the gravity lines (e.g., sewers and storm drains). Another challenge for an underpass alternative is accommodating future HSR. BNSF infrastructure constructed under this alternative would require widening, or partial demolition and reconstruction, to accommodate future HSR. While an underpass would require less ROW acquisition (seven full property acquisitions) the lengthy construction period, long-term disruption in traffic due to a long construction period, substantial utility relocations, substantial railroad impacts, substantial costs, and lack of HSR accommodation would result in several challenges under this alternative. Therefore, the alternative was dismissed from consideration.

2.4.3 Offset Underpass with Connector Roads

Under this alternative, the proposed realignment of Rosecrans Avenue would be similar to the alignment described for the Offset Overpass with One-Way Frontage Roads alternative (Section 2.4.1). Marquardt Avenue (south) would stay at grade and be extended across the lowered Rosecrans Avenue on a roadway bridge. The roadway would continue through the existing footprint of Rosecrans Avenue and connect to the realigned Rosecrans Avenue at a signalized intersection, similar to Alternative 2. Marquardt Avenue (north) would also be connected to the extension of Stage Road in this alternative similarly to Alternative

2. The roadway would stay at grade on its own bridge across the lowered portion of Rosecrans Avenue. The direct connection to Rosecrans Avenue would be severed for both Marquardt Avenue (north) and Stage Road. Access to Rosecrans Avenue would be provided through an extension of Anson Avenue.

Complications with the Offset Underpass with Connector Roads alternative would be the same as identified for the Offset Underpass with Frontage Roads alternative (Section 2.4.2). Therefore, the alternative was dismissed from consideration.

2.4.4 Offset Overpass with Connector Roads

Under this alternative, the proposed improvements would include all features described in Alternative 2: Offset Overpass with Connector Road, and would include an additional Connector Road to complete connection from Marquardt Avenue (north) to Rosecrans Avenue. The Connector Road was removed due to truck turning issues. The City of Santa Fe Springs, after review with their Fire Department, supported eliminating this connection to mitigate truck turning issues. Additionally, traffic volumes are light, and eliminating this connection did not result in significant trip redistribution in the traffic analyses.

2.4.5 Other Alternatives Withdrawn from Consideration

Other alternatives withdrawn from consideration include those that depressed the BNSF tracks (trench) under the roadways, those that shifted the alignment of Rosecrans Avenue to the north, and those that raised or lowered Marquardt Avenue (Biggs Cardosa Associates, Inc., 2016).

Lower BNSF Tracks into Trench or Raise Tracks

A trench is not feasible because of the proximity of the Coyote Creek Channel. The BNSF tracks would need to be lowered approximately 30 feet below existing grade to provide adequate vertical clearance underneath Rosecrans Avenue (which would remain at-grade). With the longitudinal slopes permitted by BNSF, it would be impossible to return the tracks to existing grade at the bridge over the Coyote Creek Channel. Depressing the tracks would therefore sever this flood control channel, located less than 0.25 mile northwest of the railroad crossing. Eliminating the flood control channel is not feasible.

Other key concerns are the industrial spur tracks, lead track, and storage tracks to the southeast of the grade crossing. These tracks are important to BNSF's operations, and the connection to these tracks would be severed by any lowering of the tracks. Similarly, raising the BNSF tracks would sever the spur, lead, and storage tracks from the mainline tracks. Modifications to the rail elevations (lowering or raising) are not feasible.

Shift Rosecrans Avenue to the North

Realigning Rosecrans to the north is not feasible because of the skewed orientation of the BNSF tracks with the Rosecrans/Marquardt intersection. Realigning Rosecrans to the north would reduce the distance between the critical point of vertical clearance over (or under) BNSF's ROW and Coyote Creek. Reconstruction of the Coyote Creek Bridge would be necessary, resulting in added project costs, and requiring coordination with the Los Angeles County Flood Control District, the United States Army Corps

of Engineers, the Regional Water Quality Control Board, and the California Department of Fish and Wildlife.

Raise or Lower Marquardt Avenue

Raising or lowering Marquardt Avenue to connect to the raised or lowered portion of Rosecrans Avenue was considered. Raising or lowering Marquardt Avenue is not feasible because of the substantial ROW impacts, primarily because of the loss of access to the properties from Marquardt Avenue, extending approximately 1,000 feet to the north and south of Rosecrans Avenue. As a result, the vast majority of fronting properties within these limits would require full acquisition and relocation, adding substantial project costs and greatly affecting the surrounding businesses.

Source: BCA; 2017

Scale: 3/4 in = 100 ft

FIGURE 2-1. ALTERNATIVE 2-PLAN VIEW
Rosecrans/Marquardt Grade Separation Project

Metro

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FIGURE 2-2. RIGHT OF WAY EXHIBIT
Rosecrans/Marquardt Grade Separation Project

Metro

ROSECRANS AVENUE
MARQUARDT AVENUE
ANSON AVENUE
STAGE ROAD
BORATE STREET
MILROY PLACE
COYOTE CREEK
ISELI ROAD
BNSF
CITY OF LA MIRADA
CITY OF SANTA FE SPRINGS

APN 8059-029-028 RM-01
APN 8059-029-010 RM-02
APN 8059-029-009 RM-03
APN 8059-029-031 RM-04
APN 8059-029-030 RM-05
RM-06
APN 8059-029-029
APN 8059-029-007 RM-17
APN 8059-028-029 RM-23
APN 8059-028-028 RM-24
APN 8059-028-020 RM-25
APN 8059-028-053 RM-26
APN 8069-003-039 RM-07
APN 8069-003-040 RM-08
APN 8069-003-009 RM-09
APN 8069-003-008 RM-10
APN 8069-003-007 RM-11
APN 8069-007-043 RM-16
APN 8069-007-814
APN 8069-005-001 RM-27
APN 8069-005-002 RM-28
APN 8069-005-008 RM-29
APN 8069-005-011 RM-32
APN 8069-006-018 RM-33
APN 8069-005-010 RM-31

Legend

- Project Footprint
- Footing Easement
- Utility Easement (Aerial)
- Bridge Easement (BNSF)
- Full Acquisition
- Temporary Construction Easement
- Roadway Easement

Source: BCA; 2017

Scale: 3/4 in = 100 ft

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